CLAIMS

I claim:

1. A test system comprising:

automated test equipment that includes:

a computer that is configured to execute a sequence of test operations for testing a device-under-test, and

an interface circuit, operably coupled to the computer, that is configured to transmit test signals in dependence upon the sequence of test operations that are executed by the computer; and

a preconditioning integrated circuit, operably coupled to the automated test equipment, that is configured to receive the test signals, and to generate therefrom at least one preconditioned test signal that is communicated to the device-under-test;

wherein

the preconditioning integrated circuit is located in immediate proximity to the device-under-test, and includes at least one contact point that is arranged to provide direct contact to the device-under-test for communicating the at least one preconditioned test signal to the device-under-test.

2. The test system of claim 1, wherein

the automated test equipment is also configured to receive at least one test response from the device-under-test, and

the preconditioning integrated circuit is also configure to receive a response signal from the device-under-test via an other contact point, and to generate therefrom the at least one test response for communication to the automated test equipment.

3. The test system of claim 1, further including

a probe card, upon which the preconditioning integrated circuit is mounted, that facilitates coupling of the preconditioning integrated circuit to the automated test equipment.

4. The test system of claim 3, wherein

the probe card is configured to provide for the mounting of a plurality of preconditioning integrated circuits, thereby facilitating simultaneous testing of a plurality of devices-under-test.

5. The test system of claim 1, wherein

the at least one contact point includes a bonding pad upon which a resilient structure is bonded to facilitate the direct contact to the device-under-test.

6. The test system of claim 5, wherein

the resilient structure includes a bonding wire that is bonded to two substantially adjacent points on the preconditioning integrated circuit.

7. The test system of claim 1, wherein

the preconditioning integrated circuit includes at least one of:

a filter,

an oscillator,

a mixer,

an amplifier,

an analog-to-digital converter,

a digital-to-analog converter,

a voltage source,

a current source,

an attenuator,

a detector,

a gain control, and

a signal conditioner.

8. The test system of claim 1, wherein

the preconditioning integrated circuit is configured to measure at least one of:

power,

phase,

noise,

transients,

undershoots, and

overshoots.

9. The test system of claim 1, wherein

the preconditioning integrated circuit includes calibration circuitry that facilitates a calibration of the preconditioning integrated circuit by the automated test equipment.

10. The test system of claim 1, wherein

the preconditioned test signal is a high-frequency signal, and

the preconditioning integrated circuit is configured to provide this high-frequency preconditioned test signal based on a low-frequency test signal of the test signals that are transmitted from the interface circuit.

11. A preconditioning integrated circuit comprising:

a plurality of conditioning elements,

each conditioning element includes circuitry that facilitates a conditioning of a test signal that is communicated from an automated test equipment, to form a conditioned test signal that is communicated to a device-under-test, and

wherein

the preconditioning integrated circuit is configured to be located immediately proximate to the device-under-test when the conditioned test signal is communicated to the device-under-test.

12. The preconditioning integrated circuit of claim 11, wherein

the plurality of conditioning elements are located within the preconditioning integrated circuit independent of the device-under-test.

13. The preconditioning integrated circuit of claim 11, further including

contact points that are configured to provide direct contact to the device-under-test for effecting communication between the preconditioning integrated circuit and the device-under-test, wherein

the preconditioning integrated circuit comprises:

a lower set of layers that include the plurality of conditioning elements, and

an upper set of layers that include the contact points; and

the lower set of layers is formed independent of the device-under-test.

14. The preconditioning integrated circuit of claim 13, wherein

the contact points are:

placed on the integrated circuit during a final fabrication stage to conform to a mirror image of contact elements on the device-under-test, and

connected to select conditioning elements during the final fabrication stage.

15. The preconditioning integrated circuit of claim 14, wherein

each of the contact points includes a bonding pad upon which a resilient structure is bonded to facilitate a direct contact to the device-under-test.

16. The preconditioning integrated circuit of claim 15, wherein

the resilient structure includes a bonding wire that is bonded to two substantially adjacent points on the preconditioning integrated circuit.

17. A method of testing, comprising:

programming an automated test equipment to execute a sequence of test operations for testing a device-under-test via a transmission of test signals to a preconditioning integrated circuit, and

providing the preconditioning integrated circuit that is configured to receive the test signals, and to generate therefrom at least one preconditioned test signal that is communicated to the device-under-test via a proximate connection to the device-under-test.

18. The method of claim 17, further including

providing a configurable integrated circuit that includes a plurality of conditioning elements, each conditioning element including circuitry that facilitates a conditioning of an input signal to form a conditioned test signal, and

configuring the configurable integrated circuit to produce the preconditioned integrated circuit via a connection of at least one of the test signals as the input signal of at least one conditioning element of the plurality of conditioning elements, such that the conditioned test signal of the at least one conditioning element forms the preconditioned test signal that is communicated to the device-under-test.

19. The method of claim 17, wherein

providing the preconditioning integrated circuit includes

providing a probe card that includes a plurality of preconditioning integrated circuits, thereby facilitating simultaneous testing of a plurality of devices-under-test.

20. The method of claim 17, wherein

the preconditioning integrated circuit is configured to measure at least one of:

power,

phase,

noise,

transients,

undershoots, and

overshoots.